Amendments to the Specification:

Please amend the paragraph at page 10, line 32 to page 11, line 10 as follows:

The microchemical system 1 is further comprised of an exciting light source 61 such as a laser diode, that outputs the exciting light, a modulator 62 that modulates the exciting light, a detecting light source 63 such as a laser diode, that outputs the detecting light, an optical multiplexer 64 that coaxially aligns the exciting light and the detecting light, a lock-in amplifier 70 that synchronizes a detection signal received by the detector 50 with the modulator 62, and a computer 71 that analyzes an output signal from the lock-in amplifier 70. The exciting light and the detecting light that are aligned with each other by the optical multiplexer 46 64 are guided in the single mode by the optical wave guide path 20 to the irradiation lens 30.

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And please amend the paragraph at page 11, line 33 to
page 12, line 15 as follows:

The plate-shaped element 10 is comprised of glass
substrates 11, 12 and 13 which are stacked upon one another
in three layers. The plate-shaped element 10 is preferably
made of glass in terms of durability and chemical
resistance. In particular, in the case where living body
samples such as cell samples are handled, for example, in
the case where such samples are subjected to DNA analysis,
the material is preferably a glass that has excellent acid
resistance and alkali resistance, for example a borosilicate
glass, a soda lime glass, an aluminoborosilicate glass, a
quartz glass or the like. However, the plate-shaped element
~~20~~ 10 may be made of an organic material such as a plastic
for some specific usage. Out of the glass substrates 11, 12
and 13, the intermediate glass substrate 12 is formed
therein with the channel 40 through which flows a liquid
containing a sample for mixing, agitating, synthesizing,
separating, extracting or detecting the sample.

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